

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 2003P08636WO | FOR FURTHER ACTION | See Form PCT/IPEA/416 |
| International application No. PCT/EP2004/013651 | International filing date (<i>day/month/year</i>) 01.12.2004 | Priority date (<i>day/month/year</i>) 11.12.2003 |
| International Patent Classification (IPC) or national classification and IPC F01 D25/14, F01 D11/18, F01 D5/28 | | |
| Applicant SIEMENS AKTIENGESELLSCHAFT | | |

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| 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. |
| 2. This REPORT consists of a total of <u>8</u> sheets, including this cover sheet. |
| 3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>9</u> sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). |
| 4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application |

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| Date of submission of the demand | Date of completion of this report |
| Name and mailing address of the IPEA/EP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/013651

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-21 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-30 received by this Authority on 12.04.2005 with letter of 08.04.2005
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/9-9/9 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☒ the claims, nos. 1, 4, 5, 29, 30
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/013651

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | |
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| 1. Statement | | | |
| Novelty (N) | Claims | 2-28, 30 | YES |
| | Claims | 1, 29 | NO |
| Inventive step (IS) | Claims | | YES |
| | Claims | 1-30 | NO |
| Industrial applicability (IA) | Claims | 1-30 | YES |
| | Claims | | NO |
| 2. Citations and explanations (Rule 70.7) | | | |
| <p>1. This report makes reference to the following documents:</p> <p>D1: DE 195 35 227 A (ASEA BROWN BOVERI) 27 March 1997</p> <p>D2: DE 723 476 C (BBC BROWN BOVERI & CIE) 5 August 1942</p> <p>D3: US 6 336 789 B1 (HUSTER JOSEF ET AL) 8 January 2002</p> <p>D4: EP 0 374 603 A (G&H MONTAGE; DAIMLER BENZ AG) 27 June 1990</p> <p>D5: US 4 405 284 A (ALBRECHT GUENTER ET AL) 20 September 1983</p> <p>D6: US 5 350 599 A (RIGNEY DAVID V ET AL) 27 September 1994</p> <p>D7: US 6 345 953 B1 (GOBRECHT EDWIN ET AL) 12 February 2002</p> <p>2. The present application does not meet the requirements of PCT Article 33(1), because the subject matter of claims 1 and 29 lacks novelty within the meaning of PCT Article 33(2).</p> <p>2.1 D1 discloses (the reference signs in</p> | | | |

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
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| | <p>parentheses refer to D1):</p> <p>the use of a thermal insulating layer (3) for a steam turbine (column 1, line 8) consisting of a plurality of housings (1,4), for adapting to the different thermal deformation behaviors (column 3, lines 40-42) of the housing (1),</p> <p>the housing (1) being subjected to a difference in temperature owing to a higher temperature on the one side of the housing and a lower temperature on the other side of the housing (column 1, lines 17-20), the thermal insulating layer (3) being applied to the side of the housing (1) having the higher temperature (see figure).</p> <p>2.2 Therefore, the subject matter of claim 1 lacks novelty.</p> <p>2.3 D2 discloses (the reference signs in parentheses refer to D2):</p> <p>a steam turbine (page 1, line 1) having two housings (1,2) , the housings (1,2) having a thermal insulating layer (3,4), the thermal insulating layer being present in at least two housings (1,2), and the thermal insulating layer having different thermal insulating effects in the two housings (1,2) (page 2, lines 11-34).</p> <p>2.4 Therefore, the subject matter of claim 29 lacks novelty.</p> |

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
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| | <p>3. The present application does not meet the requirements of PCT Article 33(1), because the subject matter of claim 2 does not involve an inventive step within the meaning of PCT Article 33(3).</p> <p>3.1 D2 discloses (the reference signs in parentheses refer to D2):</p> <p style="padding-left: 40px;">the use of a thermal insulating layer for a steam turbine (page 1, lines 1-2) in order to avoid bending the housing (page 1, lines 34-39) and therefore to avoid inadmissible radial play (page 1, lines 28-33),</p> <p style="padding-left: 40px;">the steam turbine having a plurality of housings (1,2) in a blade-mounting area, and the thermal insulating layer being present on the housing of the blade-mounting area (figure).</p> <p>3.2 The subject matter of claim 1 differs from the known use of a thermal insulating layer in that the thermal insulating layer is used to reduce radial play.</p> <p>3.3 A person skilled in the art is, however, familiar with the fact that thermal insulating layers can be used not only to prevent bending, but also to reduce radial play; see, for example, D3 (abstract), D4 (column 2, lines 4-13) and D5 (column 1, lines 35-45).</p> <p>3.4 A person skilled in the art would also</p> |

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
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| | <p>apply the known thermal insulating layer according to the circumstances in order to reduce radial play, without thereby being inventive.</p> <p>3.5 Therefore, the subject matter of claim 2 does not involve an inventive step.</p> <p>4. It should also be noted that independent claims 1, 2 and 29 also fail to meet the PCT requirements for novelty and inventive step in view of documents D4-D6.</p> <p>4.1 The subject matter of claims 1 and 2 differs from the use of the thermal insulating layer known from D4 only by the use in a steam turbine rather than in a turbocharger or a different turbomachine. A person skilled in the art would also use the thermal insulating layer known from D4 in steam turbines according to the circumstances, because he is familiar with the fact that steam turbines present the same technical problems as other turbomachines. The same line of reasoning also applies to D5.</p> <p>4.2 D6 discloses all of the features of claim 29.</p> <p>5. Dependent claims 3-28 and 30 contain no features that, in combination with the features of any claim to which they refer, meet the PCT requirements for inventive step, since the additional features are either already known from the prior art or are of</p> |

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
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| | <p>the kind that a person skilled in the art routinely uses on the basis of familiar considerations; see, for example:</p> <ul style="list-style-type: none">- for claim 3: D2- for claim 4: D4, figures- for claims 6, 7, 9, 12 and 13: D5, column 2, line 49 to column 3, line 26- for claims 14-16: D7, column 4, line 27 to column 5, line 39- for claims 19 and 20: D2- for claims 21 and 22: D1, figures- for claims 23 and 24: D3- for claim 28: D6, column 2, line 43 to column 3, line 40- for claim 30: D4, figure 1 <p>5.1 Furthermore, it should also be noted that the indications of function in claim 10 (the higher ... equals"), 27 ("without ... being increased") and 30 ("the thermal insulating layer... is subjected to") do not enable a person skilled in the art to determine what features are necessary in order to carry out the indicated functions. Insofar as can be determined, the claims do not appear to meet the PCT requirements for inventive step.</p> <p>6. The invention is industrially applicable in the field of steam turbines (PCT Article 33(4)).</p> |

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **BOX I**

The amendments submitted with the letter of 8 April 2005 introduce substantive matter which, contrary to PCT Article 34(2)(b), goes beyond the disclosure of the international application as filed. The claims in question are claims 1 and 29.

In these claims, a thermal insulating layer is used in a steam turbine having an inner housing and an outer housing in order to adapt to the different thermal deformation behaviors of the two housings. This use of a thermal insulating layer is not, however, disclosed in the originally submitted application (in particular, description, page 14, lines 7-14 and 29-34).

Therefore this report was based on the originally submitted independent claims 1 and 29. Consequently, the dependent claims have been interpreted as also being dependent on the originally submitted claims 1 and 29 (or on the newly submitted, independent claim 2).